

Application No. 10/709,782
Technology Center 3767
Amendment dated March 24, 2007
Reply to Office Action dated January 3, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): A device for detecting a chemical or biological agent and treating a person if the person is exposed to the agent, the device comprising:

a unit sufficiently small and light-weight to be carried by a person, the unit comprising at least one antidote for at least one agent selected from the group consisting of chemical and biological agents, means ~~coupled to the at least one antidote~~ for selecting the at least one antidote, means for delivering the at least one antidote into the body of the person, and means for communication between the selecting means and the delivering means; and means for detecting the presence of the at least one ~~and identifying a chemical or biological agent in a fluid sample near the person among a plurality of possible chemical and biological agents~~, the detecting ~~and identifying~~ means being in communication with the selecting means and operable to

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detect the agent in the fluid sample, identify the at least one antidote as being capable of counteracting the agent and if the agent is detected then cause then causing the delivering means to deliver the at least one antidote into the body of the person.

Claim 2 (Currently amended): The device according to claim 1, wherein the delivering means comprises:

a tube comprising a freestanding tube portion through which the at least one antidote ~~fluid~~ flows;

means for vibrating the freestanding tube portion of the tube at a resonant frequency thereof that varies with the density of the at least one antidote flowing therethrough, the Coriolis effect causing the freestanding tube portion to twist while being vibrated at resonance, the freestanding tube portion exhibiting a degree of twist that varies with the mass flow rate of the at least one antidote flowing therethrough;

means for sensing movement of the freestanding tube portion of the tube, the movement-sensing means producing a first output signal based on the resonant frequency of the freestanding tube portion and a second output signal based on the degree of twist of the freestanding tube portion;

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means for measuring elapsed time during which the at least one antidote has flowed through the tube; and
means for stopping flow of the at least one antidote through the tube in response to either of the first and second output signals from the movement-sensing means.

Claim 3 (Original): The device according to claim 1, wherein the delivering means is operable to deliver the at least one antidote subdermally, intravenously, subcutaneously, or intramuscularly.

Claim 4 (Original): The device according to claim 1, wherein the unit comprises a plurality of antidotes and the selecting means selects among the plurality of antidotes.

Claim 5 (Original): The device according to claim 1, wherein the selecting means is operable to select more than one antidote, and the delivering means is operable to deliver the more than one antidote into the body of the person.

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Claim 6 (Currently amended): The device according to claim 1, wherein the detecting ~~and identifying~~ means is remote from the unit and not carried by the person.

Claim 7 (Currently amended): The device according to claim 1, wherein the detecting ~~and identifying~~ means is physically coupled to the unit and carried on the person.

Claim 8 (Currently amended): The device according to claim 1, wherein the detecting ~~and identifying~~ means comprises:
a freestanding tube portion through which flows a portion of atmosphere surrounding the person, the freestanding tube portion comprising an internal passage containing a substance selective to the agent so that matter accumulates within the freestanding tube portion;
means for vibrating the freestanding tube portion at a resonant frequency thereof that varies with a combined density of the freestanding tube portion and contents of the internal passage; and
means for sensing movement of the freestanding tube portion and producing an output signal based on the resonant frequency of the freestanding

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tube portion, the output signal being indicative of accumulation of the matter and thereby presence of the agent in the atmosphere surrounding the person.

Claim 9 (Original): The device according to claim 1, further comprising means for measuring density of the at least one antidote.

Claim 10 (Original): The device according to claim 1, further comprising means for sending a signal indicating the location of the person.

Claim 11 (Original): The device according to claim 1, further comprising means for broadcasting an alert signal to a remote location if delivery of the at least one antidote is commenced.

Claim 12 (Original): The device according to claim 1, further comprising means for monitoring biological functions of the person, identifying biological information based on the biological functions, and sending the biological information to a remote location.

Claims 13-38 (Canceled)

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Claim 39 (Currently amended): A method of detecting a chemical or biological agent and treating a person if the person is exposed to the agent, the method comprising the steps of:

equipping the person with a unit sufficiently small and light-weight to be carried by the person, the unit comprising at least one antidote for at least one agent selected from the group consisting of chemical and biological agents, means ~~coupled to the at least one antidote~~ for selecting the at least one antidote, and means for delivering the at least one antidote into the body of the person;

detecting the presence of the at least one and identifying a chemical or biological agent in a fluid sample near the person;

if the agent is detected, sending a first signal to the selecting means; means based on the identity of the detected and identified agent;

selecting with the selecting means the at least one antidote as being capable of counteracting the agent in accordance with the first signal;

sending a second signal to the delivering means; and then

delivering with the delivering means the at least one antidote into the body of the person in response to the second signal.

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Claim 40 (Currently amended): The method according to claim 39, wherein the step of delivering the at least one antidote comprises the steps of:

 flowing the at least one antidote through a freestanding tube portion;

 vibrating the freestanding tube portion at a resonant frequency thereof that varies with the density of the at least one antidote fluid- flowing therethrough, the Coriolis effect causing the freestanding tube portion to twist while being vibrated at resonance, the freestanding tube portion exhibiting a degree of twist that varies with the mass flow rate of the at least one antidote fluid- flowing therethrough;

 sensing movement of the freestanding tube portion and producing a first output signal based on the resonant frequency of the freestanding tube portion and a second output signal based on the degree of twist of the freestanding tube portion;

 measuring elapsed time during which the at least one antidote fluid- has flowed through the freestanding tube portion; and

 stopping flow of the at least one antidote fluid- through the freestanding tube portion in response to a specified amount of the at least one antidote having passed through the freestanding tube portion based on the elapsed time and the second output signal.

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Claim 41 (Original): The method according to claim 39, wherein the at least one antidote is delivered subdermally, intravenously, subcutaneously, or intramuscularly.

Claim 42 (Original): The method according to claim 39, wherein the unit comprises a plurality of antidotes and the selecting means selects among the plurality of antidotes.

Claim 43 (Original): The method according to claim 39, wherein the selecting step comprises selecting more than one antidote, and the delivering step comprises delivering the more than one antidote into the body of the person.

Claim 44 (Currently amended): The method according to claim 39, wherein the step of ~~detecting and identifying~~ the agent is not performed on the person or with the unit.

Claim 45 (Currently amended): The method according to claim 39, wherein the step of ~~detecting and identifying~~ the agent is performed on the

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person and with the unit.

Claim 46 (Currently amended): The method according to claim 45, wherein the step of detecting ~~and identifying~~ the agent comprises the steps of:

flowing a portion of atmosphere surrounding the person through an internal passage of a freestanding tube portion, the passage containing a substance selective to the agent so that matter accumulates within the freestanding tube portion;

vibrating the freestanding tube portion at a resonant frequency thereof that varies with a combined density of the freestanding tube portion and contents of the internal passage; and then

sensing movement of the freestanding tube portion and producing an output signal based on the resonant frequency of the freestanding tube portion, the output signal being indicative of accumulation of the matter and thereby presence of the agent in the atmosphere surrounding the person.

Claim 47 (Currently amended): The method according to claim 39, further comprising inserting the delivery means into the body of the person after the step of detecting ~~and identifying~~ the agent.

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Claim 48 (Original): The method according to claim 47, wherein the step of sending the second signal to the delivering means is manually performed by the person.

Claim 49 (Currently amended): The method according to claim 47, wherein the step of detecting ~~and identifying~~ the agent is not performed on the person or with the unit.

Claim 50 (Currently amended): The method according to claim 39, wherein the step of detecting ~~and identifying~~ the agent occurs after inserting the delivering means into the body of the person.

Claim 51 (Currently amended): The method according to claim 50, wherein the step of detecting ~~and identifying~~ the agent is performed on the person and with the unit.

Claim 52 (Currently amended): The method according to claim 50, wherein the step of detecting ~~and identifying~~ the agent is not performed on the person or with the unit.

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Claim 53 (Original): The method according to claim 50, wherein the steps of sending the second signal to the delivering means and delivering the at least one antidote into the body of the person are performed without intervention by the person or others.

Claim 54 (Original): The method according to claim 50, wherein the step of sending the second signal to the delivering means is manually performed by the person.

Claim 55 (Original): The method according to claim 39, further comprising measuring the density of the at least one antidote during the delivering step.

Claim 56 (Original): The method according to claim 39, further comprising sending a signal indicating the location of the person.

Claim 57 (Original): The method according to claim 39, further broadcasting an alert signal to a remote location if delivery of the at least one antidote is commenced.

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Claim 58 (Original): The method according to claim 39, further comprising monitoring biological functions of the person, identifying biological information based on the biological functions, and sending the biological information to a remote location.

Claim 59 (New): The device according to claim 1, wherein the detecting means comprises a substance that causes accumulation of matter when the agent is present in the fluid sample.

Claim 60 (New): The device according to claim 1, wherein the detecting means obtains the fluid sample from the person's surroundings.

Claim 61 (New): The method according to claim 60, wherein the fluid sample is air.

Claim 62 (New): The method according to claim 60, wherein the fluid sample is water.

Claim 63 (New): The device according to claim 1, wherein the

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detecting means is operable to detect the type of the agent in the fluid sample.

Claim 64 (New): The device according to claim 1, wherein the detecting means is operable to detect multiple different agents in the fluid sample and identify multiple antidotes therefor to counteract the multiple different agents.

Claim 65 (New): The method according to claim 39, wherein the detecting step comprises using a substance that causes accumulation of matter when the agent is present in the fluid sample.

Claim 66 (New): The method according to claim 39, wherein the detecting step comprises obtaining the fluid sample from the person's surroundings.

Claim 67 (New): The method according to claim 66, wherein the fluid sample is air.

Claim 68 (New): The method according to claim 66, wherein the fluid

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sample is water.

Claim 69 (New): The method according to claim 39, wherein the detecting steps comprises detecting the type of the agent in the fluid sample.

Claim 70 (New): The method according to claim 39, wherein the detecting step comprises detecting multiple different agents in the fluid sample and identifying multiple antidotes therefor to counteract the multiple different agents.